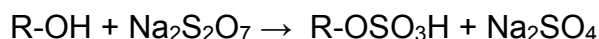


Sulfation of polysaccharides by Sodium Pyrosulfate in Dimethyl Sulfoxide

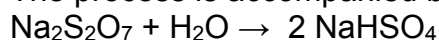
Overview :

The β -glucan (Laminarin) and its sulfated derivative (Laminarin Sulfates) have been previously demonstrated to induce resistance in grapevine against downy mildew (*Plasmopara viticola*).

The sulfation of polysaccharides with sodium pyrosulfate can be schematically described by the equation :



The process is accompanied by the side reaction :



Sodium Pyrosulfate : $\text{Na}_2\text{S}_2\text{O}_7$

Dimethyl Sulfoxide = DMSO : $(\text{CH}_3)_2\text{SO}$

Protocol :

The sulfation of polysaccharides in the $\text{Na}_2\text{S}_2\text{O}_7$ -DMSO system can be performed following the steps below :

1. Dry 1-5 g of a polysaccharide to constant weight, then, place it in a flask
2. Add Sodium pyrosulfate and dimethyl sulfoxide (pure grade) in succession while stirring, and heat the mixture for 6 hours in a double boiler (water bath) at a temperature of 333 K. Composition of the sulfating mixture (g g^{-1}) : Curdlan : $\text{Na}_2\text{S}_2\text{O}_7$: DMSO = 1.0 : 3.0 : 5.0
3. After 6 hours, neutralize the mixture with a saturated sodium carbonate solution to a pH between 8 and 10.
4. Then demineralize the solution by dialysis on cellophane membranes until the qualitative reaction for sulfate ions in wash waters is negative.
5. Put the purified solution in a refrigerator

Analyses :

The sulfur content of polysaccharide sulfates can be determined by potentiometric titration. The Sulfo-Curdlan synthesized can be studied by IR spectroscopy.